

WHAT IS CLAIMED IS:

Sibal 1. A valve stem seal assembly comprising an elastomeric seal body and a cylindrical retainer defining a longitudinal axis, said retainer comprising an upper end portion that circumferentially supports said seal body; said elastomeric seal body comprising an annular valve stem seal adapted for sealingly engaging a reciprocally movable valve stem; said cylindrical retainer further comprising a lower extremity defining a radially outwardly extending spring seat flange including a radially extending bottom surface adapted to bear against a cylinder head deck, wherein said bottom surface comprises at least one protrusion extending axially downwardly therefrom and adapted for engagement with at least one depression in the cylinder head deck that corresponds to said protrusion.

2. The valve stem seal of claim 1 wherein said protrusion on said bottom surface of said spring seat flange that engages said depression is adapted to resist torque forces applied to said spring seat flange by mechanical vibrations.

3. The valve stem seal of claim 2 wherein said retainer is comprised of a hardened metal, said protrusion is a circular convex bump, and whereby sliding contact is avoided between surfaces of said flange and cylinder head deck to prevent wear between said surfaces.

4. The valve stem seal of claim 3 wherein said valve stem seal comprises a plurality of said protrusions on said bottom surface of said flange.

5. A valve stem seal assembly comprising an elastomeric seal body and a cylindrical retainer defining a longitudinal axis, said retainer comprising an upper end portion that circumferentially supports said seal body; said elastomeric seal body comprising an annular valve stem seal adapted for sealingly engaging a reciprocally movable valve stem; said cylindrical retainer further comprising a lower extremity defining a radially outwardly extending spring seat flange including a radially extending bottom surface adapted to bear against a cylinder head deck, wherein said bottom surface comprises at least one sharp edged protrusion extending axially downwardly therefrom and adapted to bite into the surface of the cylinder head deck at a position that corresponds to said protrusion.

6. The valve stem seal of claim 5 wherein said sharp edged protrusion on said bottom surface of said spring seat flange that engages the cylinder head deck is adapted to resist torque forces applied to said spring seat flange by mechanical vibrations.

7. The valve stem seal of claim 6 wherein said retainer is comprised of a hardened metal, said protrusion is a jagged structure extending from said bottom surface of said flange, whereby sliding contact is avoided between surfaces of said flange and the cylinder head/deck to prevent wear between said surfaces.

8. The valve/stem seal of claim 7 wherein said valve stem seal comprises a plurality of said protrusions on said bottom surface of said flange.

9. A valve stem seal assembly comprising an elastomeric seal body and a cylindrical retainer defining a longitudinal axis; said retainer comprising an upper end portion that circumferentially supports said seal body; said elastomeric seal body comprising an annular valve stem seal adapted for sealingly engaging a reciprocally movable valve stem; said cylindrical retainer further comprising a lower extremity defining a radially outwardly extending spring seat flange including a radially extending bottom surface adapted to bear against a cylinder head deck, wherein said bottom surface comprises at least one sharp edged protrusion extending axially downwardly therefrom, said protrusion also extending radially along said bottom surface, and being adapted to bite into the surface of the cylinder head deck along a radial area thereof that corresponds to said protrusion.

10. The valve stem seal of claim 9 wherein said sharp edged protrusion on said bottom surface of said spring seat flange is adapted to engage the cylinder head deck and to thereby resist torque forces applied to said spring seat flange by mechanical vibrations.

11. The valve stem seal of claim 10 wherein said retainer is comprised of a hardened metal, said protrusion has a saw-tooth cross-section extending from said bottom surface of said flange adapted to engage the cylinder head deck, whereby sliding contact is avoided between surfaces of said flange and cylinder head deck to prevent wear between said surfaces.

12. The valve stem seal of claim 11 wherein said valve stem seal comprises a plurality of said protrusions on said bottom surface of said flange.

13. A valve spring anti-rotation apparatus comprising of a valve spring seat washer adapted to circumferentially surround a valve guide, said washer including a radially extending bottom surface adapted to bear against a cylinder head deck, wherein said bottom surface comprises at least one protrusion extending axially downwardly therefrom and adapted for engagement with at least one depression in the cylinder head deck that corresponds to said protrusion.

14. The valve spring anti-rotation apparatus of Claim 13 wherein said protrusion on said bottom surface of said washer that engages said depression is adapted to resist torque forces applied to said washer by mechanical vibrations.

15. The valve spring antirotation apparatus of Claim 14 wherein said protrusion comprises a sharp edge adapted to bite into the cylinder head deck and to thereby create said depression in said deck.

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